

JEE Main 2024 Chemistry Question Paper April 5 Shift 2

Time Allowed :3 Hours	Maximum Marks :300	Total Questions :90
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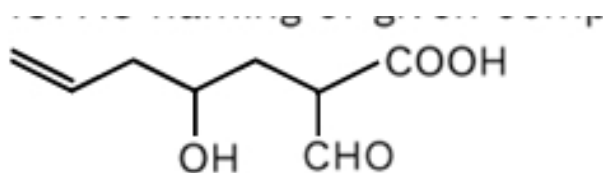
General Instructions

Read the following instructions very carefully and strictly follow them:

1. The test is of 3 hours duration.
2. The question paper consists of 90 questions, out of which 75 are to attempted. The maximum marks are 300.
3. There are three parts in the question paper consisting of Physics, Chemistry and Mathematics having 30 questions in each part of equal weightage.
4. Each part (subject) has two sections.
 - (i) Section-A: This section contains 20 multiple choice questions which have only one correct answer. Each question carries 4 marks for correct answer and -1 mark for wrong answer.
 - (ii) Section-B: This section contains 10 questions. In Section-B, attempt any five questions out of 10. The answer to each of the questions is a numerical value. Each question carries 4 marks for correct answer and -1 mark for wrong answer. For Section-B, the answer should be rounded off to the nearest integer

Chemistry

1. IUPAC naming of given compound



- (1) 2-formyl-4-hydroxy hept-6-enoic acid
- (2) 6-formyl-4-hydroxy hept-1-enoic acid
- (3) 4-hydroxy-6-formyl-hept-1-enoic acid
- (4) 4-hydroxy-2-formyl-hept-6-enoic acid

2. Coagulation of egg is due to

- (1) Denaturation of protein
- (2) 2° structure does not change

- (3) 1° structure does not change
(4) 3° structure does not change
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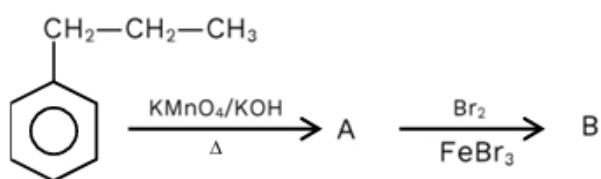
3. Square planar complex $Mabcd$ will have how many isomers

- (1) 2
(2) 3
(3) 4
(4) 5
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4. For $n = 4$, $l = 1$, $m_s = \frac{1}{2}$, then maximum number of electrons with this combination will be

- (1) 6
(2) 8
(3) 10
(4) 12
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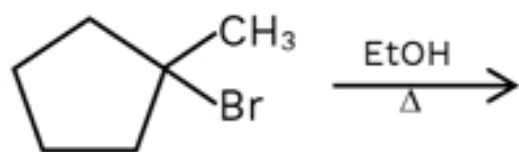
5. Calculate number of π bond present in product B



6. Which of the following doesn't have electron in t_{2g} orbital?

- (1) $[\text{TiCl}_4]$
(2) $[\text{MnO}_4^{2-}]$
(3) $[\text{FeCl}_4^{2-}]$
(4) $[\text{Co}(\text{CN})_4^{2-}]$

7. Major product in the given reaction



8. Statement-A: NF_3 have less dipole moment than NH_3 .

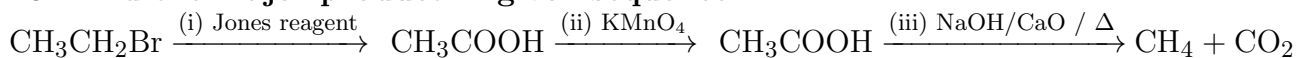
Statement-R: F is more electronegative and bond moment of N-H bond is in same direction of lone pair.

- (1) Both A and R are correct and R is the correct explanation of A.
(2) Both A and R are correct, but R is not the correct explanation of A.
(3) A is correct but, R is incorrect.
(4) R is correct but, A is incorrect.

9. Compound having dipole moment = 0

H_2 , BF_3 , CH_4 , NH_3 , H_2O , CO_2 , NF_3 , BeF_2 , SiF_4 , H_2S

10. Find the major product in given sequence



- (1) Acetic acid
(2) Acetaldehyde
(3) Ethane
(4) Methane

11. List-I (P) IF

- (Q) IF_7
(R) ICl_3

(S) BF_3

List-II (1) Linear

(2) Pentagonal bipyramidal

(3) T-shape

(4) Trigonal Planar

(1) $\text{P} \rightarrow 1$; $\text{Q} \rightarrow 2$; $\text{R} \rightarrow 3$; $\text{S} \rightarrow 4$

(2) $\text{P} \rightarrow 2$; $\text{Q} \rightarrow 3$; $\text{R} \rightarrow 4$; $\text{S} \rightarrow 1$

(3) $\text{P} \rightarrow 3$; $\text{Q} \rightarrow 4$; $\text{R} \rightarrow 2$; $\text{S} \rightarrow 1$

(4) $\text{P} \rightarrow 4$; $\text{Q} \rightarrow 1$; $\text{R} \rightarrow 2$; $\text{S} \rightarrow 3$

12. $\text{FeO}_3 + \text{Na}_2\text{CO}_3 \xrightarrow{\text{air}} \text{A} + \text{B} + \text{C} (\text{CO}_2)$

Sum of magnetic moment (nearest integer) of central metals in A and B will be

13. $E_{\text{M}^{2+}/\text{M}}^\circ = 0.34\text{V}$ and $E_{\text{X}^{2-}/\text{X}}^\circ = -0.46\text{V}$ Select the correct statement.

(1) $E_{\text{cell}} = 0.80\text{V}$

(2) $E_{\text{cell}} = -0.80\text{V}$

(3) Cell reaction $\text{M} + \text{X}_2 \rightarrow \text{M}^{2+} + 2\text{X}^{2-}$ is spontaneous

(4) Cell reaction $\text{M}^{2+} + 2\text{X}^{2-} \rightarrow \text{M} + \text{X}_2$ is spontaneous

14. Ti^{2+} , Cr^{2+} , V^{2+} How many of them liberate H_2 gas with dilute mineral acid?

(1) 0

(2) 2

(3) 1

(4) 3

15. Correct order of increasing atomic size of 13th group element will be

- (1) Tl > In > Al > Ga > B
 - (2) Tl < In > Al > Ga > B
 - (3) Tl > In > Al < Ga > B
 - (4) In > Tl > Ga > Al > B
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16. On passing 1C charge through an aqueous AgNO₃ solution: How much Ag is deposited?

- (1) 1g atom of Ag is deposited
 - (2) 1 electrochemical equivalent of Ag is deposited
 - (3) 1 chemical equivalent of Ag is deposited
 - (4) 1 gm of Ag is deposited
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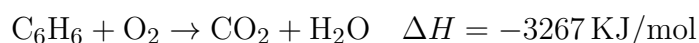
17. List-I (P) Metamer (Q) Chain isomer (R) Functional isomer (S) Position isomer

List-II (1) Isopentane neopentane (2) Propanal propanone (3) Methoxy propane ethoxyethane
(4) n-propanol isopropanol

- (1) P→3; Q→1; R→2; S→4
 - (2) P→2; Q→3; R→4; S→1
 - (3) P→3; Q→2; R→1; S→4
 - (4) P→1; Q→3; R→2; S→4
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18. Acetic acid dimerizes in liquid benzene. 60 g of acetic acid is dissolved in 500 g of benzene. Find the value of ΔT_f (Given: $K_f = 5 \frac{K \cdot kg}{mol}$)
Assume complete association.

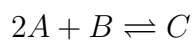
19. Given combustion of benzene:



Calculate standard enthalpy of formation for 2 moles of benzene from the following data:

$$\Delta H_f CO_2 = -393.5 \text{ kJ/mol}, \quad \Delta H_f H_2O = -285.83 \text{ kJ/mol}$$

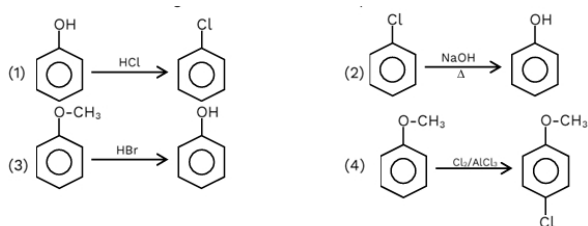
20. Given elementary reaction



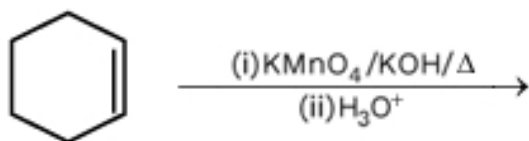
Initial pressure 1.5, 0.7

After time t pressure of $C = 0.5$. Find $\frac{R_1}{R_2}$

21. Which of the following is incorrect match for product?



22. Consider the following reaction:



- (1) Adipic acid
 - (2) Oxalic acid
 - (3) Succinic acid
 - (4) Benzoic acid
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